

Claims

1. An inflator comprising a cylindrical inflator housing which is closed at one end thereof and is opened at the other end and in which a pressurized gas is charged, and a diffuser portion which is connected to an opening of the inflator housing, accommodates an igniter therein and has a gas discharge port, wherein

at least one portion of a gas discharge passage existing from the inflator housing to the gas discharge port of the diffuser portion is closed by a flat plate-shaped rupturable plate,

an igniter for rupturing the rupturable plate is disposed such that the axial direction of the inflator housing is orthogonal to the axial direction of the igniter and the axial direction of the igniter is not exactly opposite to a surface of the flat plate-shaped rupturable plate, and

a means for directing a rupturing energy generated by activation of the igniter in the exactly opposite direction to rupture the rupturable plate.

2. An inflator according to claim 1, wherein the igniter has a fragile portion at a portion exactly opposite to the rupturable plate, the fragile portion is ruptured at activation of the inflator and a rupturing energy acts on the rupturable plate from the fragile portion.

3. An inflator according to claim 2, wherein the fragile portion provided in the igniter is constituted with a

combination of a hole provided in a side face of a cup member covering the igniting portion of the igniter and a sealing tape closing the hole from the inside of the cup member.

4. An inflator according to claim 2, wherein the fragile portion provided in the igniter comprises a portion surrounded by a groove or a portion with a notch, which is provided in a side face of a cup member covering the igniting portion of the igniter.

5. An inflator according to claim 1, wherein a guiding passage for guiding a rupturing energy discharged from the igniter to the rupturable plate is formed in the diffuser portion, and a rupturing energy is guided to a central portion of the rupturable plate or a portion thereof in the vicinity of the central portion by action of the guiding passage.

6. An inflator according to claim 5, wherein the guiding passage for guiding a rupturing energy discharged from the igniter to the rupturable plate comprises a cap, which surrounds at least the igniting portion of the igniter and is disposed in a direction orthogonal to the axial direction of the inflator housing, and a hole which is provided at a position, on a side face of the cap, which is exactly opposite to the rupturable plate.

7. An inflator according to claim 1, comprising a cap which surrounds at least the igniting portion of the igniter and is disposed in a direction orthogonal to the axial direction of the inflator housing is provided wherein,

a groove or a notch formed in a desired shape is provided

at a portion, in a peripheral face of the cap, which is exactly opposite to the rupturable plate; and

a portion having the desired shape is deformed to fall down towards the rupturable plate and come in contact with the rupturable plate by action of a rupturing energy discharged from the igniter.

8. An inflator according to claim 7, wherein the desired shape portion formed by the groove or the notch has an arrowhead shape, and the arrowhead-shaped portion is deformed to fall down towards the rupturable plate and come in contact with the rupturable plate by action of a rupturing energy discharged from the igniter.

9. An inflator according to any one of claims 1 to 8, wherein the pressurized gas is charged in a single space.

10. An inflator comprising a cylindrical inflator housing which is closed at one end thereof and is opened at the other end and in which a pressurized gas is charged, and a diffuser portion which is connected to an opening portion of the inflator housing, accommodates an igniter therein and has a gas discharge port, wherein

at least one portion of a gas discharge passage existing from the inflator housing to the gas discharge port of the diffuser portion is closed by a flat plate-shaped rupturable plate, and the pressurized gas is charged in a single space;

an igniter for rupturing the rupturable plate is disposed in the single space charged with the pressurized gas such that the axial direction of the inflator housing and the axial

direction of the igniter obliquely cross with each other; and a means causing a rupturing energy generated by activation of the igniter to act in an oblique direction to the rupturable plate to rupture the rupturable plate.

11. An inflator according to any one of claims 1 to 10, wherein a diffuser tube having a second gas discharge port is further connected to the gas discharge port of the diffuser portion.

12. An inflator according to claim 11, wherein the diffuser tube is arranged such that the diffuser tube is coaxial to the inflator housing or the central axis of the inflator housing and the central axis of the diffuser tube are parallel to each other.

13. An inflator according to claim 11 or 12, wherein the diffuser tube has plural second gas discharge ports in a peripheral face thereof and the plural second gas discharge ports are provided circumferentially at equal intervals.

14. An inflator according to any one of claims 1 to 13, wherein a filter which catches fragments of the rupturable plate is disposed in the gas discharge passage existing from the rupturable plate to the gas discharge port or to the second gas discharge port.